JANUARY 1979
No. 1

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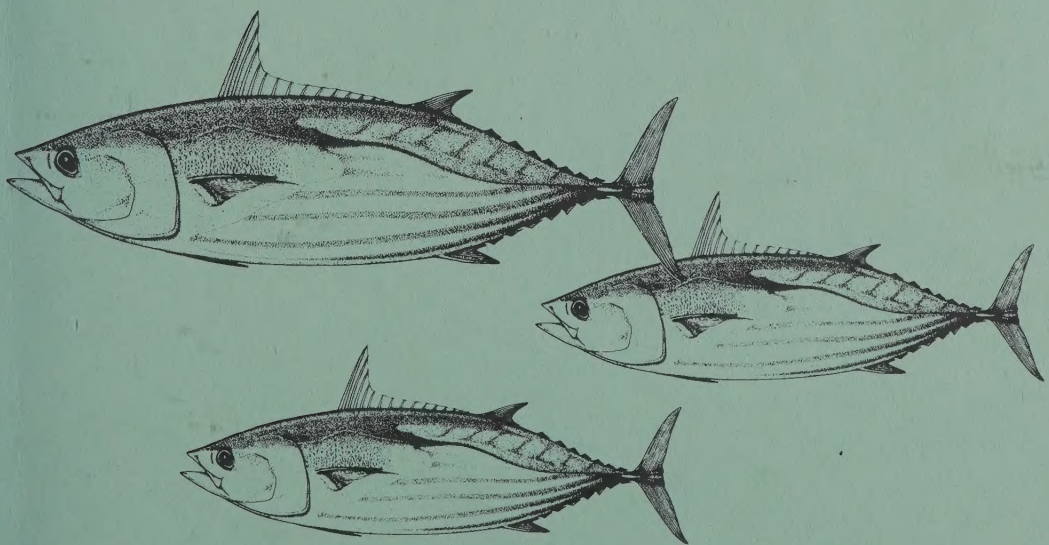

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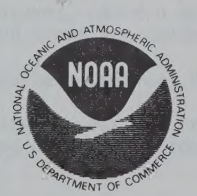

EDITOR: JAMES A. RENNER

I. Barrett, Director, SOUTHWEST FISHERIES CENTER
J. Carr, Deputy Director

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

To cancel delivery of this publication in the event you no longer need to receive it, or to change the delivery address if you are moving but still need to receive it, please notify us by writing: James A. Renner, Editor, Fishing Information, National Marine Fisheries Service, Southwest Fisheries Center, P. O. Box 271, La Jolla, California 92038.

Submitted for publication - March 1, 1979.

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1, 2, 3, 4, 5, 6, 7, and 15 day supplement)

TECHNICAL EDITOR:
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Fisheries Research Board of Canada, Pacific Environment Institute, West Vancouver, British Columbia by L. F. Giovando from observations by:
J. Redhead at Langara Island Light; D. Veale at Cape St. James Light;
L. Collins at Kains Island Light; M. V. Stewart at
Amphitrite Point Light

Scripps Institution of Oceanography, La Jolla, California

Expendable bathythermograph and salinity observations are made by the mates and engineers of the *Hawaiian Queen* of the Matson Navigation Co. The data are processed under supervision of D. R. McLain at the NMFS Pacific Environmental Group, Monterey, California, using computer facilities of the Fleet Numerical Weather Central, Monterey. The project is partially supported by the National Science Foundation and the Office of Naval Research.

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

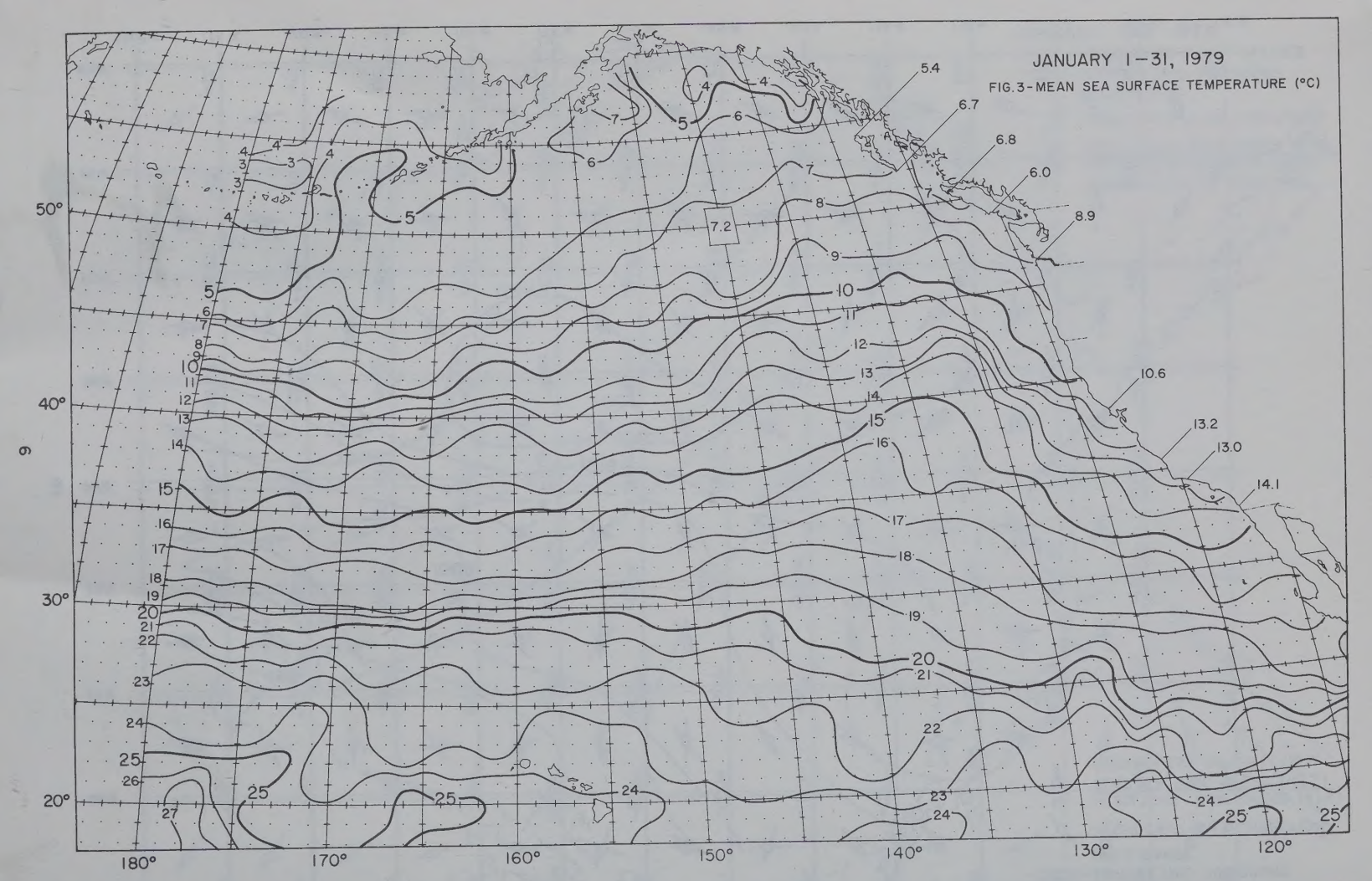
During January the Aleutian low pressure center is normally near 50°N, 178°W and the eastern Pacific high pressure center is near 32°N, 130°W. Normally, weather fronts intensify and move eastward between the two pressure centers where surface winds and pressure gradients are strongest (Figure 1). Ocean mixing and ocean fronts are normally more pronounced between 35°N and 50°N.

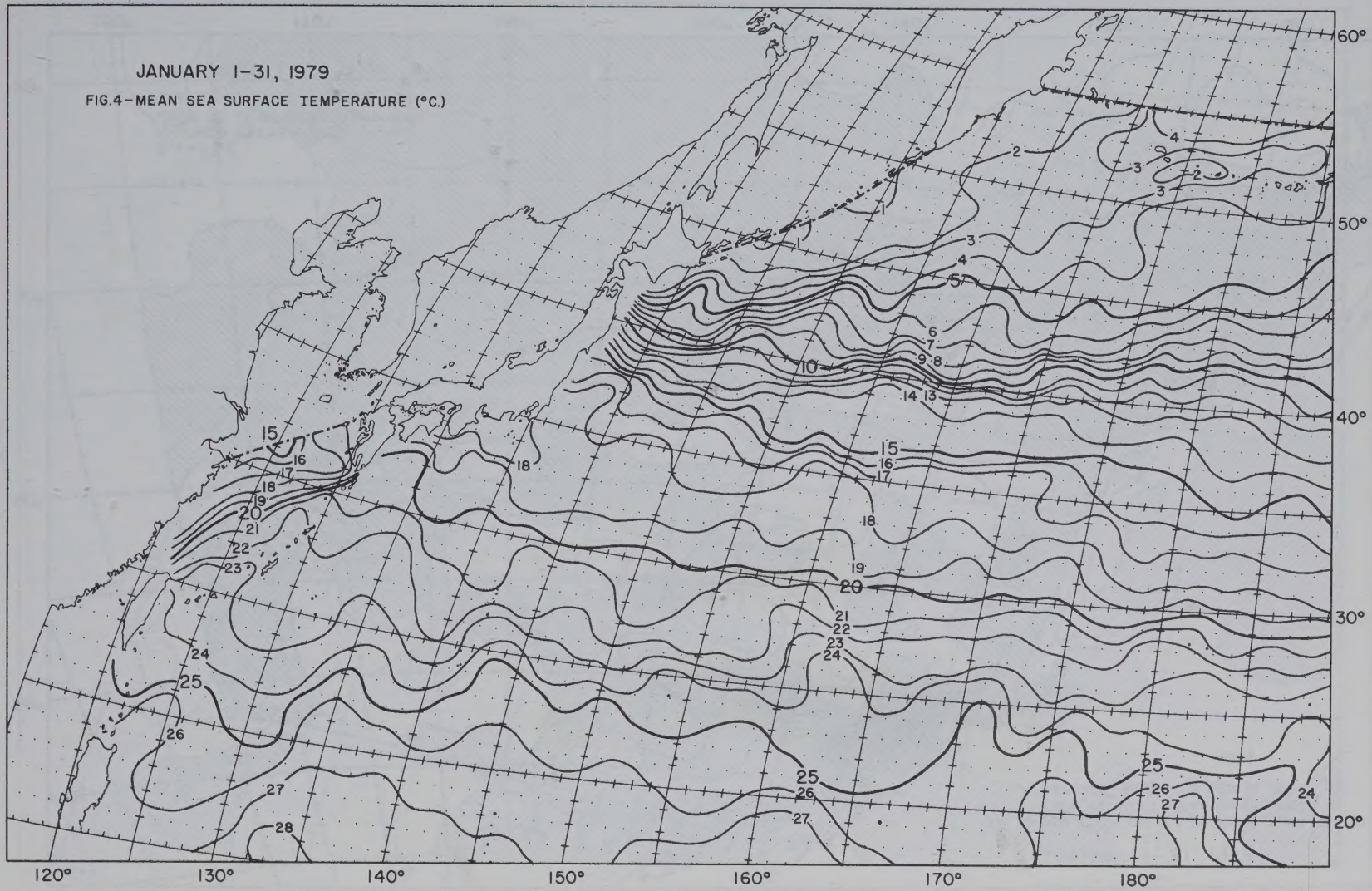
In January 1979 the Aleutian low pressure center was west of its normal position (55°N, 177°E), and central pressures were about 10 millibars below normal. The eastern Pacific high pressure system was split into two centers with the dominant center located near 35°N, 155°W (Figure 2). The centers of both the Aleutian low and Pacific high pressure systems were displaced west and north of their normal positions. This situation has persisted since November 1978. The strongest surface winds, ocean mixing and weather frontal development was from 35°N to 45°N and west of 160°W where the greatest pressure gradient (close spacing of isobars) persisted between the Aleutian low and high pressure centers (Figure 2). Between 135°W and 165°W and north of 40°N, strong southerly surface winds probably transported more than usual amounts of warmer water from the central Pacific toward the Gulf of Alaska.

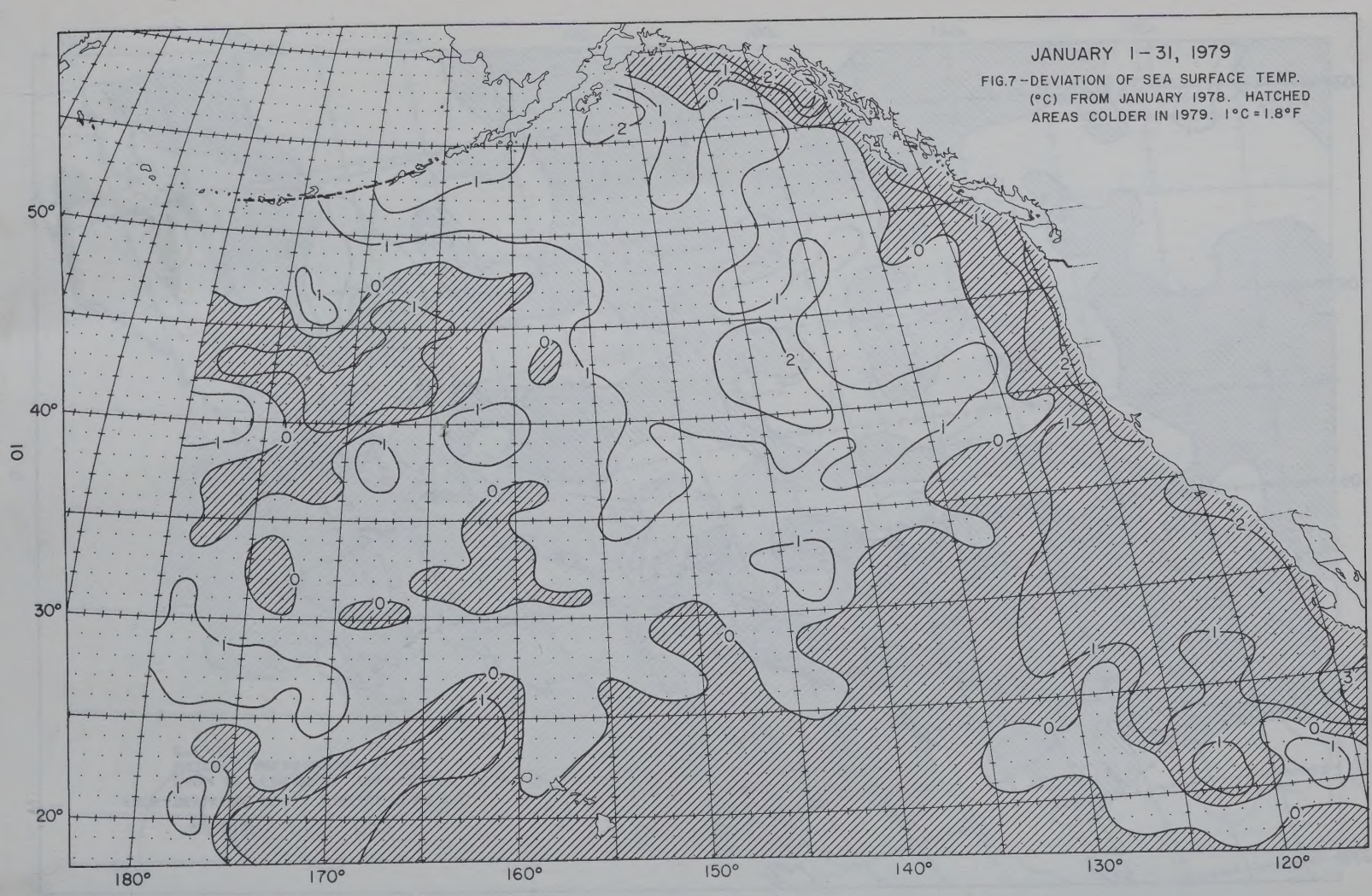
Sea Surface temperatures (SST) between 135°W and 155°W and north of 35°N were more than 1°C above normal (Figure 5) in areas where the isotherms bend northward toward the Gulf of Alaska (Figure 3). This large region was under the influence of southerly surface winds and below normal cloud cover. Along the west coasts of North America, except southern California and northern Baja, upwelling was apparently strong, and offshore northerly surface winds following frequent storm passages caused more than normal seasonal cooling. The SST departure patterns in January 1978 were nearly opposite those in January 1979 (Figure 5) north of 30°N (Figure 7). The SST difference patterns between the two Januaries were very similar to the SST departures from the 20-year mean (Figure 5). The areas of negative SST departures west of 150°W and south of 35°N in January 1979 were associated with weather fronts and strong surface winds which penetrated farther south than usual in the central Pacific.

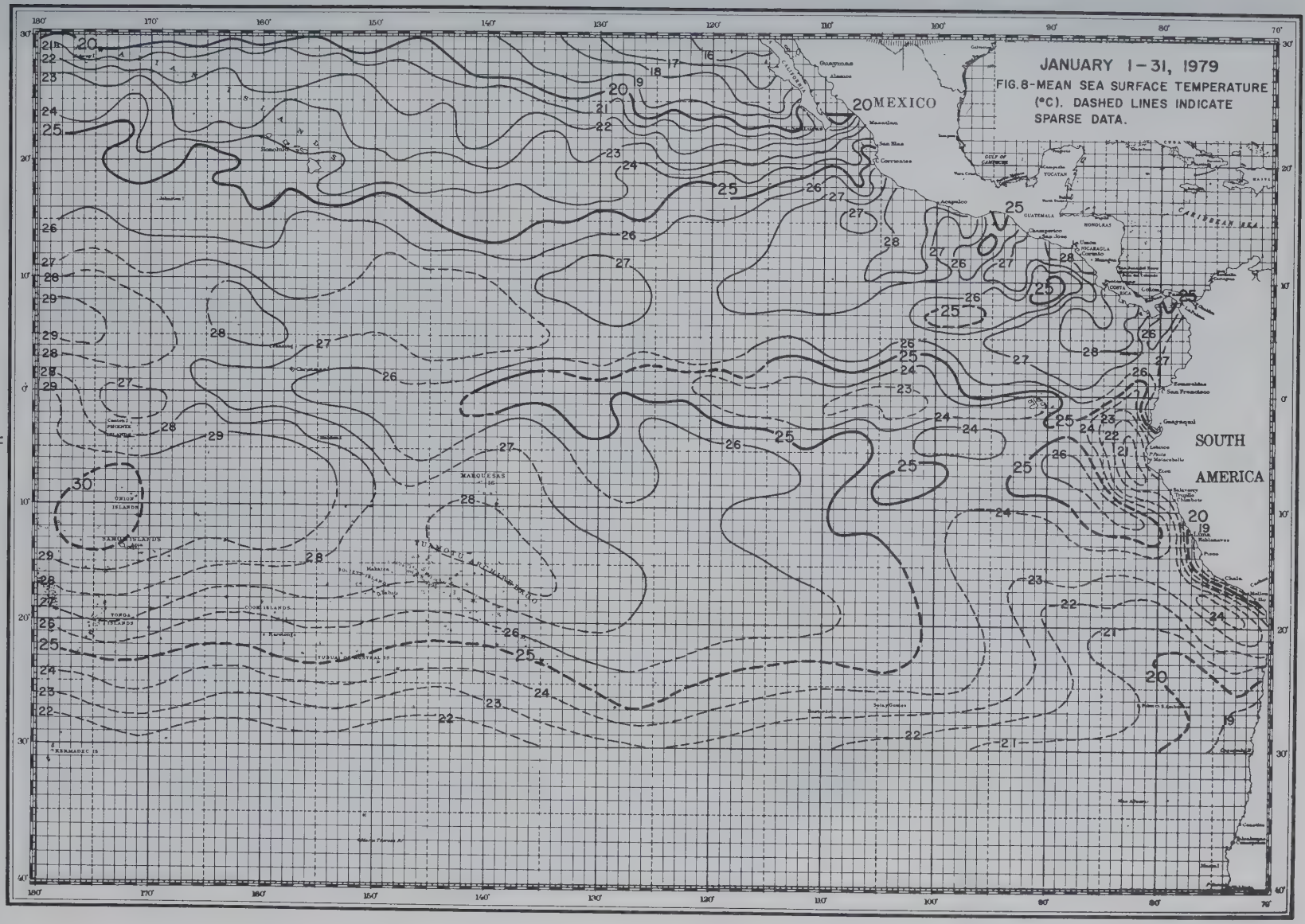
Western North Pacific

During January, the westward extension of the Aleutian low pressure system affected most of the region north of 35°N. Rapid moving weather fronts with deep low pressure centers, which developed between 40°N and 50°N on the periphery of the Aleutian low, generated extensive ocean mixing between 40°N and 45°N east of 155°E. As a result, the north Pacific ocean front (close spacing of isotherms) was more pronounced than usual from 40°N to 43°N and east of 155°E (Figure 4). North of the ocean front, negative SST departures greater than 1°C persisted in areas of greatest wind mixing and also north of Japan where southward moving currents transported colder water to the frontal zone (Figure 6). West of 155°E the small areas of positive SST departures adjacent to negative departures were probably maintained by the northward moving Kuroshio Current and the existence of a weak high pressure system over Japan. From 20°N to 35°N, SST's were slightly below normal where frontal systems extended southward, and SST's were above normal where weak sub-tropical high centers were dominant features.


JANUARY 1–31, 1979
FIG. 3 - MEAN SEA SURFACE TEMPERATURE (°C)
5.4
6.7
6.8
6.0
8.9
10.6
13.2
13.0
14.1
7.2
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


JANUARY 1-31, 1979
FIG.4-MEAN SEA SURFACE TEMPERATURE (°C.)
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


JANUARY 1-31, 1979
FIG.7-DEVIATION OF SEA SURFACE TEMP. (°C) FROM JANUARY 1978. HATCHED AREAS COLDER IN 1979. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


JANUARY 1 – 31, 1979
FIG. 8 – MEAN SEA SURFACE TEMPERATURE (°C). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
GULF OF CAMPECHE
YUCATAN
CUBA
HAITI
MARQUESAS
TUAMOTU ARCHIPELAGO
COOK ISLANDS
TUBUAI
BERMADEC IS
NORTH PACIFIC OCEAN
SOUTH PACIFIC OCEAN

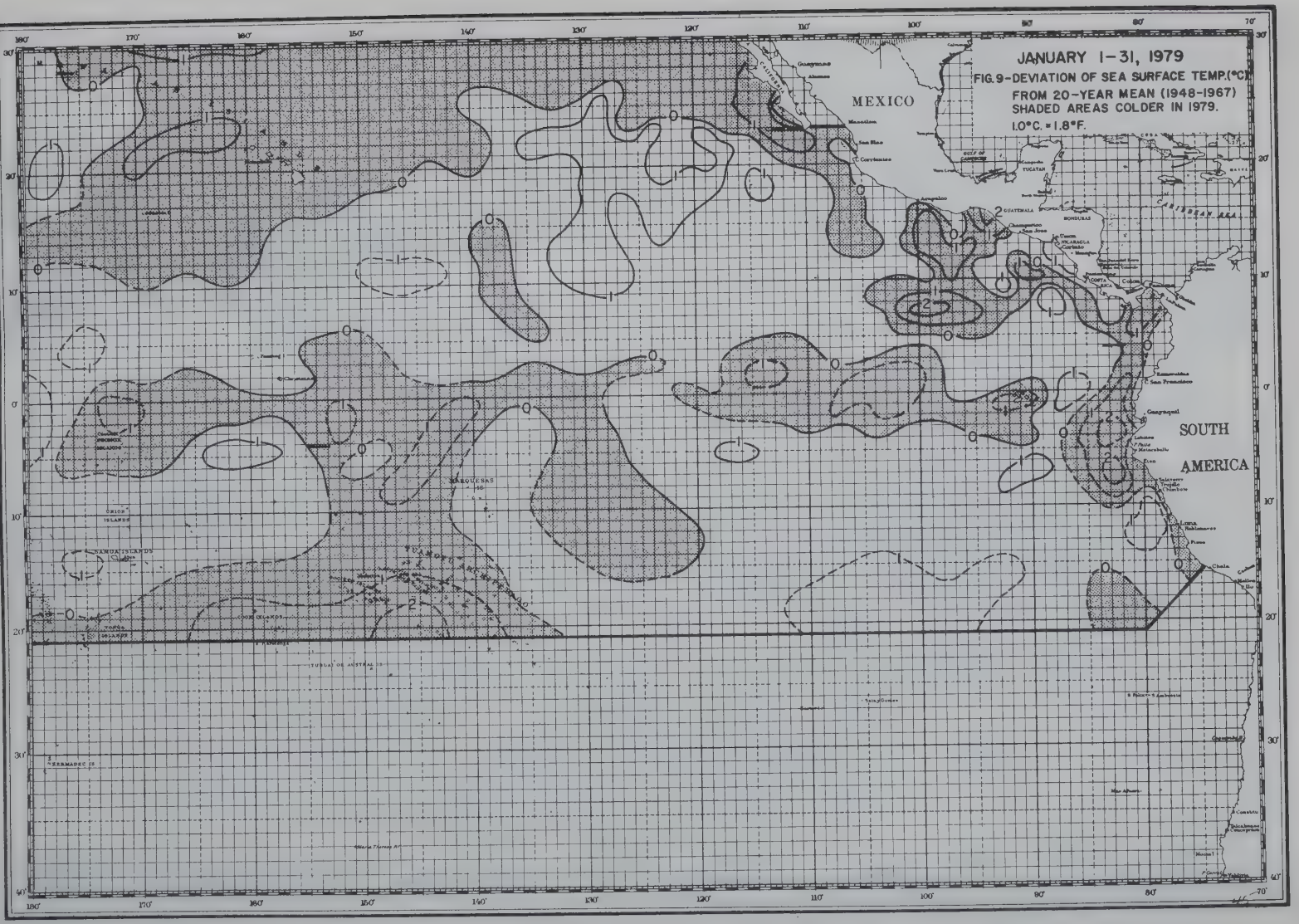
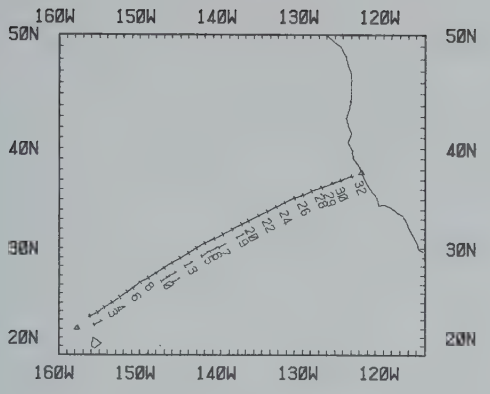

JANUARY 1-31, 1979
FIG.9-DEVIATION OF SEA SURFACE TEMP.(°C)
FROM 20-YEAR MEAN (1948-1967)
SHADED AREAS COLDER IN 1979.
1.0°C. = 1.8°F.
MEXICO
SOUTH
AMERICA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
CARIBBEAN SEA
GULF OF CALIFORNIA
TUCAMAN
Guayaquil
San Francisco
Lima
Chala
Callao
Pisco
Salaverry
Trujillo
Manta
Paita
Mollendo
Arica
Iquique
Antofagasta
Coquimbo
Valparaiso
Concepcion
Talcahuano
Corral
Puerto Montt
Chiloe
Guaymas
Mazatlan
San Blas
Corrientes
Acapulco
Salina Cruz
Puerto Angel
Manzanillo
Puntarenas
Golfito
Colon
Buenaventura
Tumaco
Esmeraldas
Manta
Salinas
Chimbote
Huacho
Callao
Pisco

FIGURE 10



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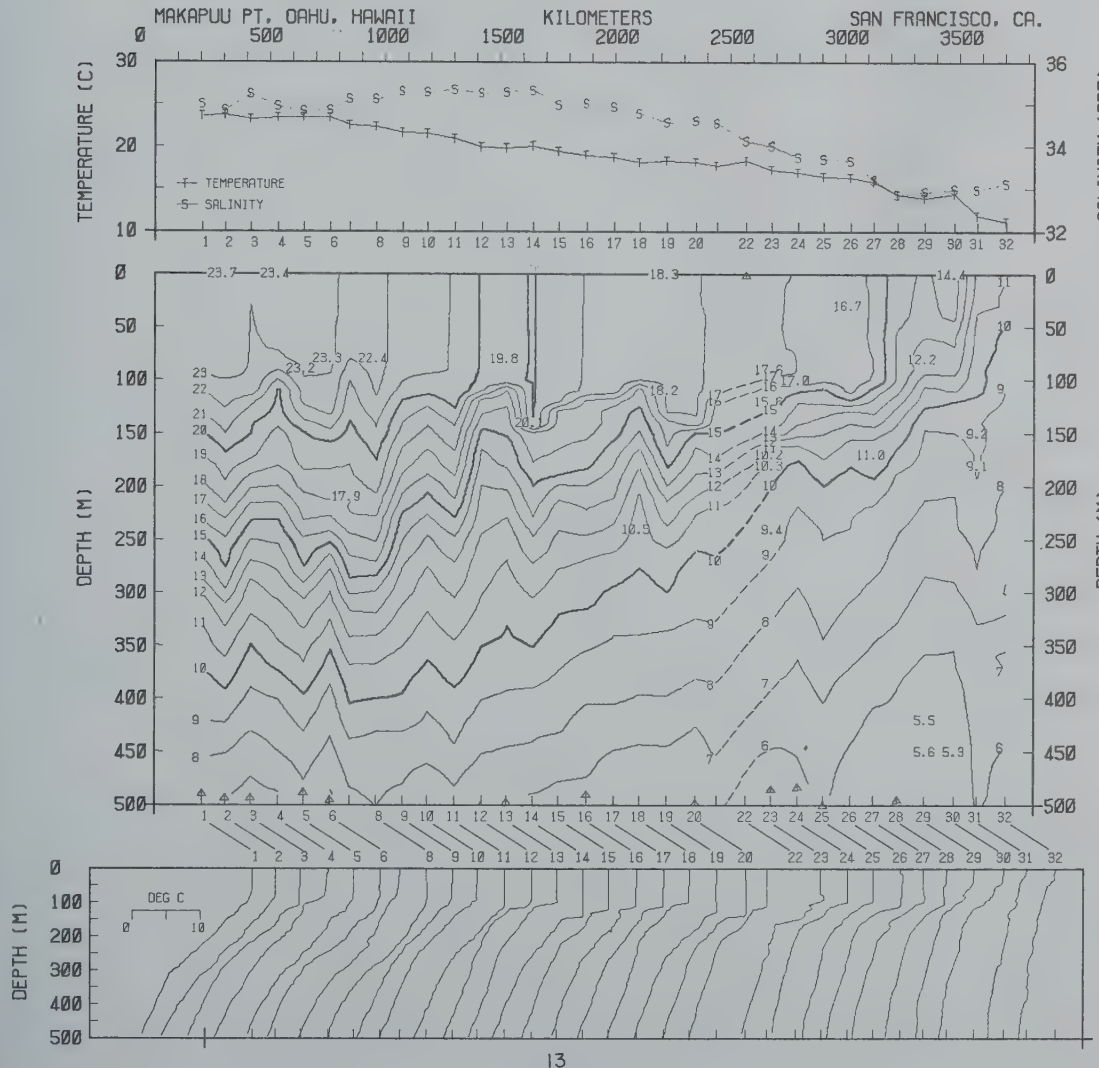

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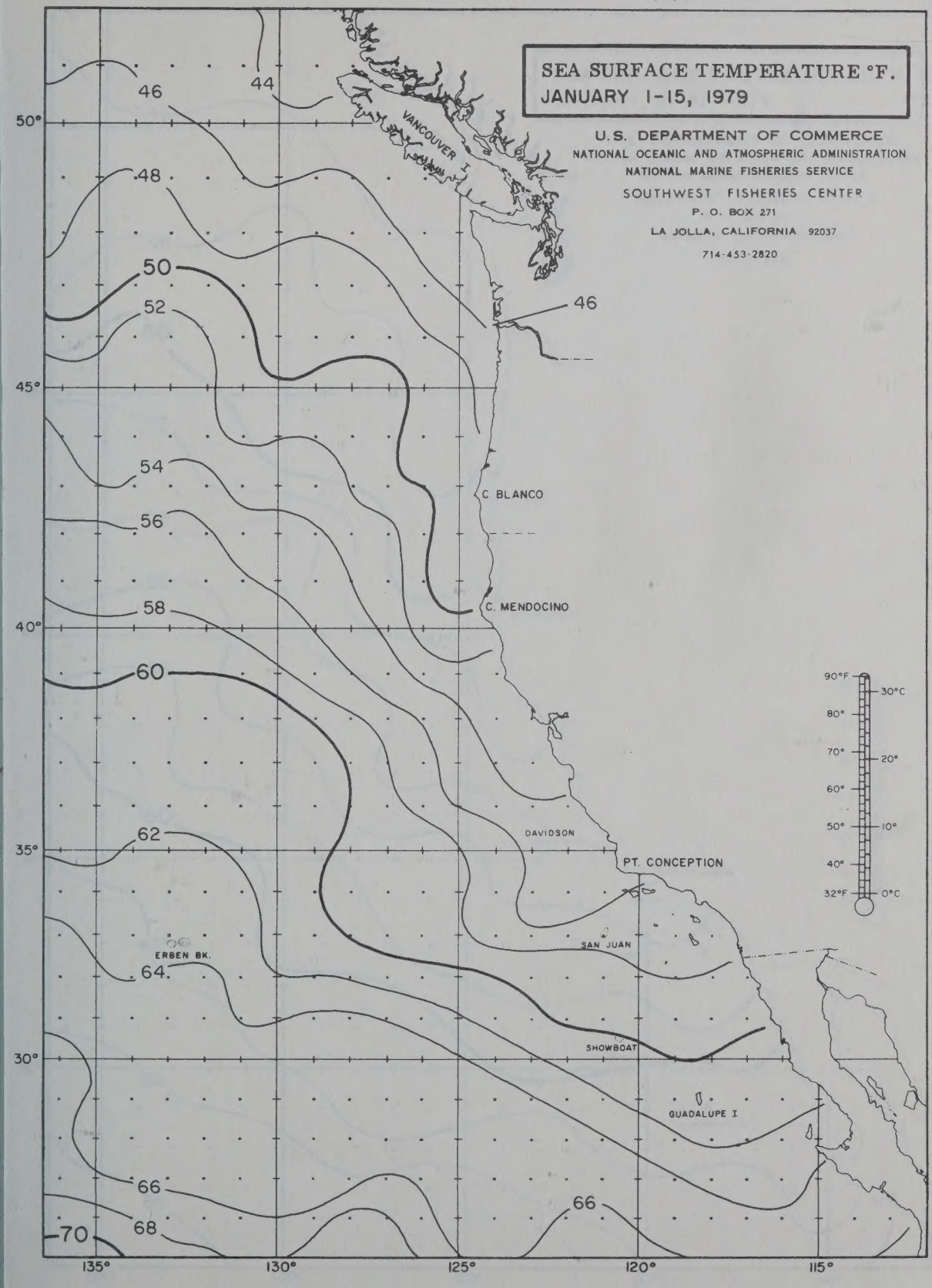

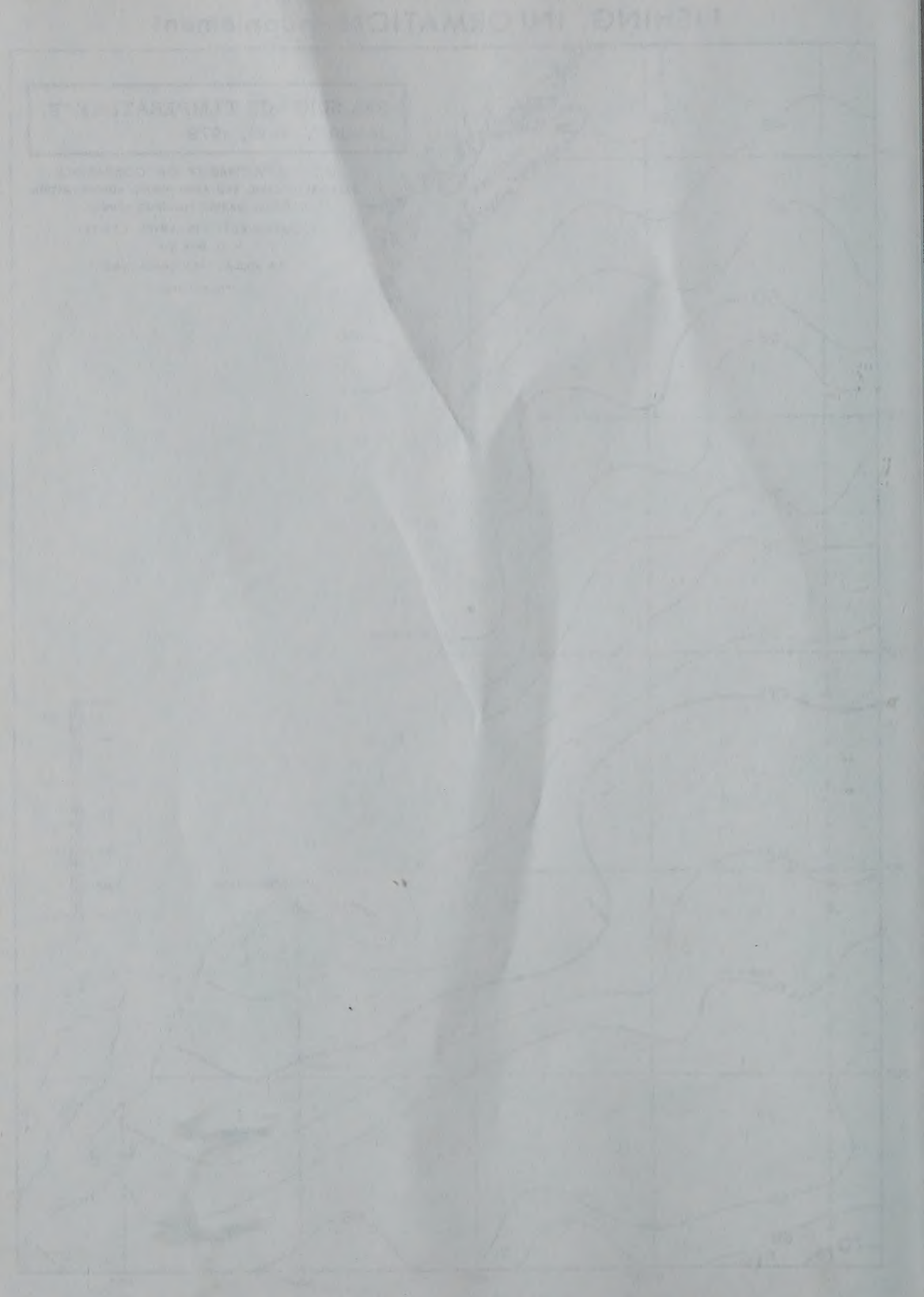

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